

Remarks

Claims 4 and 6-10 are currently pending in this application. In the instant Supplemental Amendment, claim 4 has been amended to recite “immediately thereafter hot dip galvanizing the steel sheet at the temperature of 450°C to 600°C”. Support for this amendment is found in the specification, e.g., on p. 10, ll. 7-31.

No new matter has been introduced by the present amendment. Entry of the foregoing amendment and consideration of the following remarks are respectfully requested.

Rejections under 35 U.S.C. §103

In the Final Office Action, claims 4, and 7-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2003-239040 to Mizutani, et al. (“JP ’040”) in view of JP 06-108152 to Kashima, et al. (“JP ’152”).

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over JP ’040 in view of JP ’152 as applied to claim 4 above, and further in view of U.S. Patent No. 6,423,426 to Kobayashi, et al. (“US ’426”).

Claims 9-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP ’040 in view of JP ’152 as applied to claim 4 above, and further in view of JP 05-331537 to Deguchi, et al. (“JP ’537”).

In the Advisory Action, according to the Examiner, the Applicants argued that JP ’040 teach an additional quenching step in the middle of cooling after heating and soaking, however, the Examiner contends that the instant claims as written do not exclude any additional steps, thus, the process of JP ’040 reads on instant claims.

In response, Applicants have amended claim 4 to clarify that the hot dip galvanizing step is performed immediately after cooling the steel sheet at a cooling rate of 1°C/s or higher to a temperature of 450 to 600°C. According to the specification (p. 10, ll. 7-31), at the time of cooling, the sheet is cooled by a 1°C /s or higher, preferably a 20°C /s or higher cooling rate to 450 to 600°C. With a cooling temperature over 600°C, austenite would easily remain in the steel sheet and the secondary workability and delayed fracture property would deteriorate. On the other hand, if less than 450°C, the temperature would become too low for the subsequent hot dip galvanization and the plating would be obstructed. Thus, the temperature of the steel sheet would not reach lower than 450°C between the cooling step and the hot dip galvanizing step. In the present invention, the cooling (at temperature range of

450 to 600°C) takes place immediately before the hot dip galvanizing step. In other words, there is no quenching step between the cooling step and the hot dip galvanizing step. The claims as amended indicates that the present process cannot include a quenching step in the middle of cooling after heating and soaking, prior to the hot dip galvanization and alloying steps as taught by JP '040. Thus, the JP '040 process is clearly different from the claimed process.

Furthermore, in the Advisory Action, the Examiner states that she only relies on JP '152 to show that incorporating a tempering step, as taught by JP '152 into the process of JP '040 would improve the tensile strength of the steel sheet by obtaining tempered martensite structure, and contends that since Applicants have not provided any factual evidence to show that incorporating the tempering step of JP '152 would have upset the process of JP '040, Applicants' argument is not found persuasive.

The Examiner also states that she only relies on US '426 and JP '537 to show that incorporating the resin coating of US '426 and the preplating step of JP '537 would reform the shape or adjust surface-roughness of the steel sheet and achieve good plating nature and contends that since Applicants have not provided any factual evidence to show that incorporating the resin coating of US '426 and the preplating step of JP '537 would have upset the process of JP '040 in view of JP '152, Applicants' argument is not found persuasive.

In response, as previously presented in the November 8, 2010 Amendment, Applicants respectfully submit that none of the secondary references (i.e., JP '152, US '426 and JP '537) cure the deficiencies in JP '040. Even if one of ordinary skill in the art would to incorporate the tempering step of JP '152, the resin coating of US '426 and the preplating step of JP '537 into the process of JP '040, based on JP '040's teachings, the desired tempered martensite of the present invention should not be obtained because JP '040 teaches including a quenching step in the middle of cooling after heating and soaking, prior to the hot dip galvanization and alloying steps, thereby generating the martensite structure prior to hot dip galvanization and alloying steps. Whereas, in the present invention, the process does not include a quenching step in the middle of cooling and the desired tempered martensite is formed after the galvanization and alloying steps.

Therefore, for at least the reasons presented above, JP '040 in view of JP '152, US '426 and JP '537 cannot render the presently claimed invention obvious. Withdrawal of the rejections of claims 4 and 6-10 under 35 U.S.C. §103 is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is in condition for allowance. Early and favorable action by the Examiner is earnestly solicited. If the Examiner believes that issues may be resolved by a telephone interview, the Examiner is invited to telephone the undersigned at the number below.

No fee is believed to be due for the filing of this Supplemental Amendment. Should any fees be due, however, the Office is hereby authorized to charge any fees required under 37 C.F.R. §1.16 or § 1.17 or credit any overpayments to Deposit Account No. 11-0600.

Respectfully Submitted,

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